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Helena MT 59620-1001

Jim Lynch, Director
Brian Schweitzer, Governor

May 18, 2007

County Commissioners' Office
Ravalli County
215 S. 4th
Hamilton, MT 59840-2853

Subject: **Information Request**

Project Name:	**Guardrail South of Conner**
Project Number:	**HSIP 473-1(2)12**
Control Number:	**6076**

The Montana Department of Transportation is evaluating potential environmental impacts that may be associated with the above project. With this letter we are requesting your assistance to help us conduct a thorough analysis and we are inviting Ravalli County to provide comments or helpful information on the proposed project.

The Guardrail South of Conner safety improvement project is located on State Secondary 473 (S-473) from Route Post (RP) 12.0 to RP 12.6 in Ravalli County. The purpose of the project is to install guardrail along the east side of Secondary 473 between the aforementioned reference posts to improve the safety of route. The project was nominated to address an accident cluster identified by Safety Management. The proposed project will not require the acquisition of right-of-way. The relocation of utilities is also not likely. Please review the enclosed Preliminary Field Review Report (dated: 8/16/2006) for specific details about the proposed project.

If you have comments or potentially helpful information, please contact MDT at your earliest convenience. To ensure that your comments are included with the correct project, please refer to Project Name, Number and Control Number listed above. If MDT does not receive a written response within thirty (30) calendar days, we will assume that Ravalli County has no concerns about this project.

If you have any questions, please contact me by phone me at (406) 444-9412 or email at tgocksch@mt.gov. I will be pleased to assist you. Thank you for your assistance.

Thomas Gocksch, P.E.
Project Development Engineer
Environmental Services Bureau

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cc: Tom Hansen, P.E. - Environmental Services Bureau
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Preliminary Field Review Report

HSIP 473-1(2)12
SF069 - Guardrail – S of Conner
UPN 6076000
Work Type 310 - Roadway & Roadside Improvements

1. **Introduction** – A preliminary field review was held on April, 26, 2006. The following attended the field review.

   Wade Salyards, PE, CE Specialist IV, Road Design, Helena
   Bob Eide, CE Specialist III, Road Design, Helena
   Ray Sacks, Construction, Butte
   Mike Nichols, Traffic Operations Crew Leader, Ravalli County
   Bill Meisner, Ravalli County Road Foreman

2. **Proposed Scope of Work** - We propose to install guardrail along the east side of Secondary 473 between Reference Post (RP) 12.0± and 12.6± The project was nominated with limits of RP 12.0± to RP 12.5± to address an accident cluster identified by Safety Management.

3. **Project Location and Limits** – The project is on Secondary 473 in Ravalli County. It begins at RP 12.0±, 12 miles southwest of the junction of US 93 and Secondary 473. It extends southerly 0.6± miles to RP 12.6±. The approximate as-built station limits are Station 630+00 to 662+00 (stationing increases from north to south). The project limits may change slightly as the design is refined. Revisions will be documented in the scope of work report.

4. **Physical Characteristics** – S-473 is functionally classified as a secondary rural collector. The road is on the narrow corridor between the West Fork of the Bitterroot River to the east and a steep hillside to the west. The roadway grades range from level to gently rolling, but the river and adjacent mountainous terrain constrain the horizontal alignment.

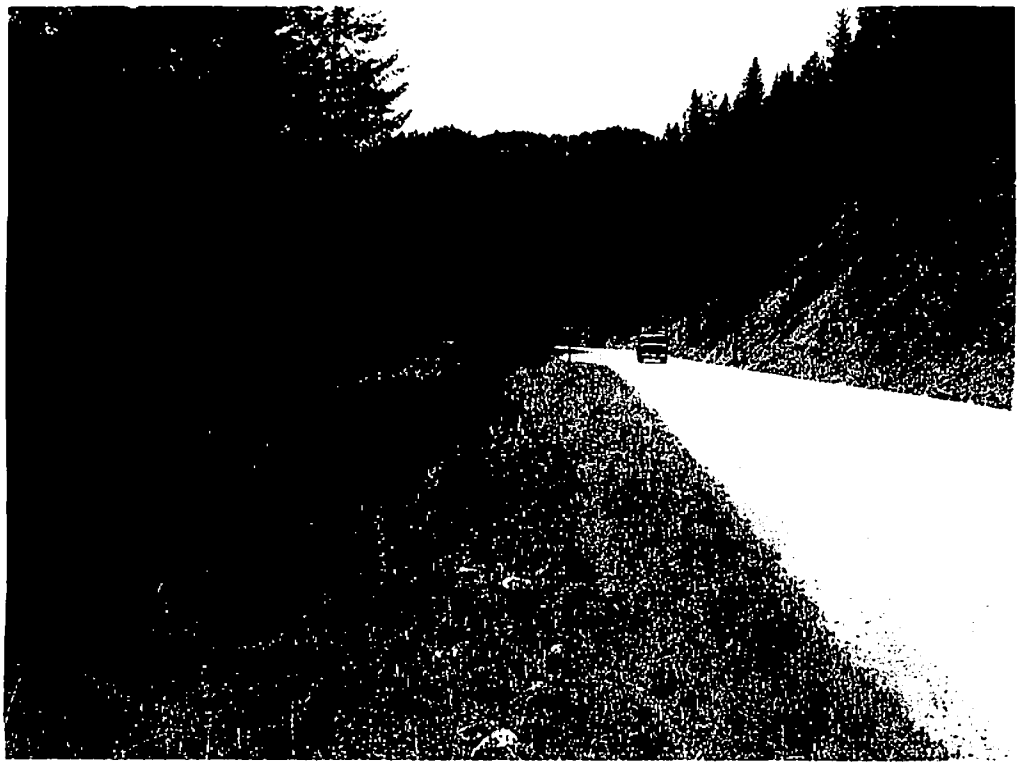
   There is little development along this section of road. There are numerous driveways just north of the north project limit of RP 12.0. There is one forest road approach within the project limits at RP 12.032 on the east side of the road that has a steep approach. There is a pullout area from approximately RP 12.372 to RP 12.436 on the east side of the road for river access.

   The road was originally built in 1958 under project S – 268(1). An overlay was placed in 1996 under RTS 473-1(1)0 [3238].

   The existing paved width is generally 24 feet wide with two 11 foot travel lanes and two 1 ft shoulders.

Existing fill slopes range from 6:1 to 1½:1 and fill heights range from less than 9 ft to over 18 ft. Existing cut depths are generally less than 9 ft, back slopes are 3:1 or steeper, and inslopes are 2:1 to 3:1 and steeper.

This photo is at RP 12.351 looking south. The fill slope is about 1½:1, with about 4 feet between the edge of pavement and the hinge point of the fill.



The horizontal alignment consists of 3 flat curves. The sharpest curve, at RP 12.096, has an 818.51 foot radius and is 723.1 feet long. The curve's radius exceeds the minimum of 760 feet for a 50 mph design speed.

The vertical alignment features fairly level grades connected by two 400 foot sag vertical curves and an 800 foot crest vertical curve. The steepest grade within the project limits is -1.43%. There is a +2.13% grade just to the south of RP 12.5 that may impact the design of the guardrail.

The field review team noticed that the some of the fill slopes along this section of road (on the east side of the road) have some large pieces of blasted rock and/or boulders in them. This was probably from the original construction of the road where they put rocky material from the cut slope on the west side of the road in the fill section.

5. **Traffic Data** – The letting date and design year traffic volumes were projected by applying a 2.7% annual growth rate to the 2006 AADT of 850. This provides enough precision for the guardrail design criteria that is traffic-volume dependent.

2006 ADT = 850 (Present)
2007 ADT = 880 (Letting Date)
2027 ADT = 1,490 (Design Year)
Growth Rate = 2.7% (Annual)

6. **Accident History** – The segment of S - 473 from RP 12.0 to RP 12.5 had 8 recorded crashes from January 1, 1994 to December 31, 2003. Five crashes were considered correctable by the proposed improvements. Of these crashes, 4 were injury crashes resulting in 8 injuries and 1 was a property damage only crash. There were no fatal crashes during this time period.

The cost/benefit ratio was calculated at 5.27, based on a construction cost estimate of $120,900. The project is on a rural collector, so it qualifies for funding under the High Risk Rural Road program.

7. **Major Design Features** – We propose to design this project in accordance with the geometric design criteria for the pertinent design elements (i.e. guardrail and slope flattening), as presented in the 1992 Geometric Design Standards. Additional guidance will be obtained from the Road Design Manual (as updated June 2006), particularly Figure 12-5 (Geometric Design Criteria for Rural Collector Roads) and Chapter 14 (Roadside Safety).

Although we will strive to achieve 50 mph design speed criteria for guardrail, the existing topography (steep embankments and approaches) may limit the extent to which the shy distance and length of need requirements can be met. The guardrail will be designed to provide a minimum shy distance (distance from edge of 12-foot driving lane to face of rail) of 2 feet. Adequate length of need will be provided where practical to do so, with consideration given to intersection sight distance and the impact to private approaches.

The design will be done in US Customary Units, and will be assigned to the Missoula crew of the Road Design Section in Helena.

a. **Design Speed** - We propose a design speed of 50 mph, appropriate because although the grades are characteristic of level terrain (60 mph), the horizontal alignment is more characteristic of mountainous terrain (45 mph), so a 50 mph design speed (rolling terrain) is a reasonable compromise. The posted speed limit is 55 mph.

b. **Horizontal Alignment** – No changes are proposed.

c. **Vertical Alignment** – No changes are proposed.

d. **Typical Sections** – No changes to the existing roadway are proposed. Shoulder gravel may be required to level the area between the edge of pavement and the face of the guardrail. Embankment-in-place will be used to flatten slopes at end sections.

e. **Geotechnical Considerations** – No involvement.

f. **Hydraulics** – No involvements

g. **Bridges** – There are no bridges on this project.

h. **Traffic Engineering** – The only Traffic Engineering involvement will be the possible resetting of three signs. There is a curve warning sign at RP 12.35± that may interfere with guardrail installation. The sign appears to be five to six feet off the edge of pavement. The "falling rock" warning sign at RP 12.68 and the road name guide sign at RP 12.70± may also have to be reset if the guardrail extends that far south.

i. **Pedestrian/Bicycles/ADA** – There is no evidence of much pedestrian or bicycle use on the roadway. Placement of the guardrail 2 feet from the edge of 12-foot driving will likely affect the comfort level of bicyclists and pedestrians, but providing a wider shoulder is beyond the scope of this project.

j. **Miscellaneous Features** – Guardrail itself is inherently considered a miscellaneous design feature. Issues associated with the design of the guardrail include the following:

1) Along some embankments, difficult-to-construct sliver fills would be needed to provide the two feet of 10:1 or flatter embankment behind the guardrail post. We propose to specify 7-foot guardrail posts spaced at 3'1½" (Detailed Drawing 606-11A&B) along the entire project to eliminate the need for two feet of widening behind the rail.

2) Sight distance from at least one approach will be a concern. We will consider slope flattening the segment just south of the approach at RP 12.032 to reduce the length of rail in proximity to the approach. This approach has a steep downhill landing which may contribute to restricted sight distance after the guardrail is installed. We'll evaluate the feasibility of raising the elevation of the approach landing.

We will also look at specifying steel guardrail posts where sight distance is restricted. The steel post is considerably smaller in

cross-section than a wood post, so the driver has greater ability to see "through" the line of posts when viewed obliquely from an approach.

3) Areas disturbed by grading will be revegetated. The area will probably be about 0.2 acre, so we'll consider a lump sum bid item for REVEGETATION instead of a bid item by the acre. The item would require revegetation of all areas disturbed by construction and would include topsoil, seed, mulch, etc.

k. **Context Sensitive Issues** – No issues contest sensitive issues have been identified.

8. **Other Projects** – There are currently no other programmed projects on MT 473 between RP 0± and RP 14.0±. The section of S-473 between the Highway 93 junction and the Conner Cutoff Road junction at RP 3.1± was closed on May 26th this year due to high water undercutting the roadway at RP 0.5±. Traffic is being detoured on US 93 to the Conner cutoff and back onto S-473. A project may be programmed in the near future after preliminary geotechnical investigation to determine the magnitude of the fix.

9. **Location Hydraulics Study Report** – This report is not required, given the limited scope of the project.

10. **Design Exceptions** – The design exception process does not apply to safety projects. The applicable design elements that do not comply with MDT design criteria (i.e. guardrail details, shy distance, etc.) will be discussed in the scope of work report.

11. **Right-of-Way** – The existing right-of-way is 200 ft on the east side of the road. The existing right-of-way on the west side of the road is 50 feet from Station 630+31 to 643+00 and 200 feet from 643+00 to 656+71. No right-of-way involvement is anticipated.

12. **Access Control** – No access control is proposed.

13. **ITS** – N/A

14. **Utilities/Railroad** – There is an overhead power line along the west side of the road. There are 4 power poles associated with this power line between RP 12.147 to RP 12.467. The power poles look like they are approximately 10 to 12 feet from the edge of pavement and should not affect the placement of guardrail.

There are pedestals for buried telephone visible along the route. The one most likely to be impacted is at RP 12.04± on the east side, just south of an approach.

If this approach is revised to improve sight distance, the pedestal will probably be in conflict. We suspect the phone line is buried in the ditch along the west side, so it would not be impacted by guardrail installation on the east side. The phone line location will have to be verified during survey.

There are no railroads within the project limits.

15. **Survey** – The survey request is attached. The District is requested to provide a survey that provides information including, but not limited to, PTW centerline, edge of pavement, edge of shoulder, toe of ditch, approaches, power poles, underground utilities, and signs.

16. **Public Involvement** – A "Level A" public involvement plan is appropriate for this project. A news release for the project will be distributed to the various local media. The public involvement plan may be adjusted if controversial issues arise.

15. **Environmental Considerations** – No significant environmental issues are anticipated. The review team did notice some large trees along the embankments we propose to shield with guardrail. Some tree may have to be removed if they are within the deflection zone behind the guardrail. We did not notice any obvious wetlands or hazardous waste sites. There are no apparent 4(f) or 6(f) involvements.

    The level of environmental evaluation and documentation for a Programmatic Categorical Exclusion is appropriate.

17. **Traffic Control** – Appropriate signing, lane closures, detours, etc. in accordance with the MUTCD, will be used to maintain traffic through construction. Traffic will likely be restricted to one lane during working hours. During non-working hours, we will try to maintain two-way traffic through the project.

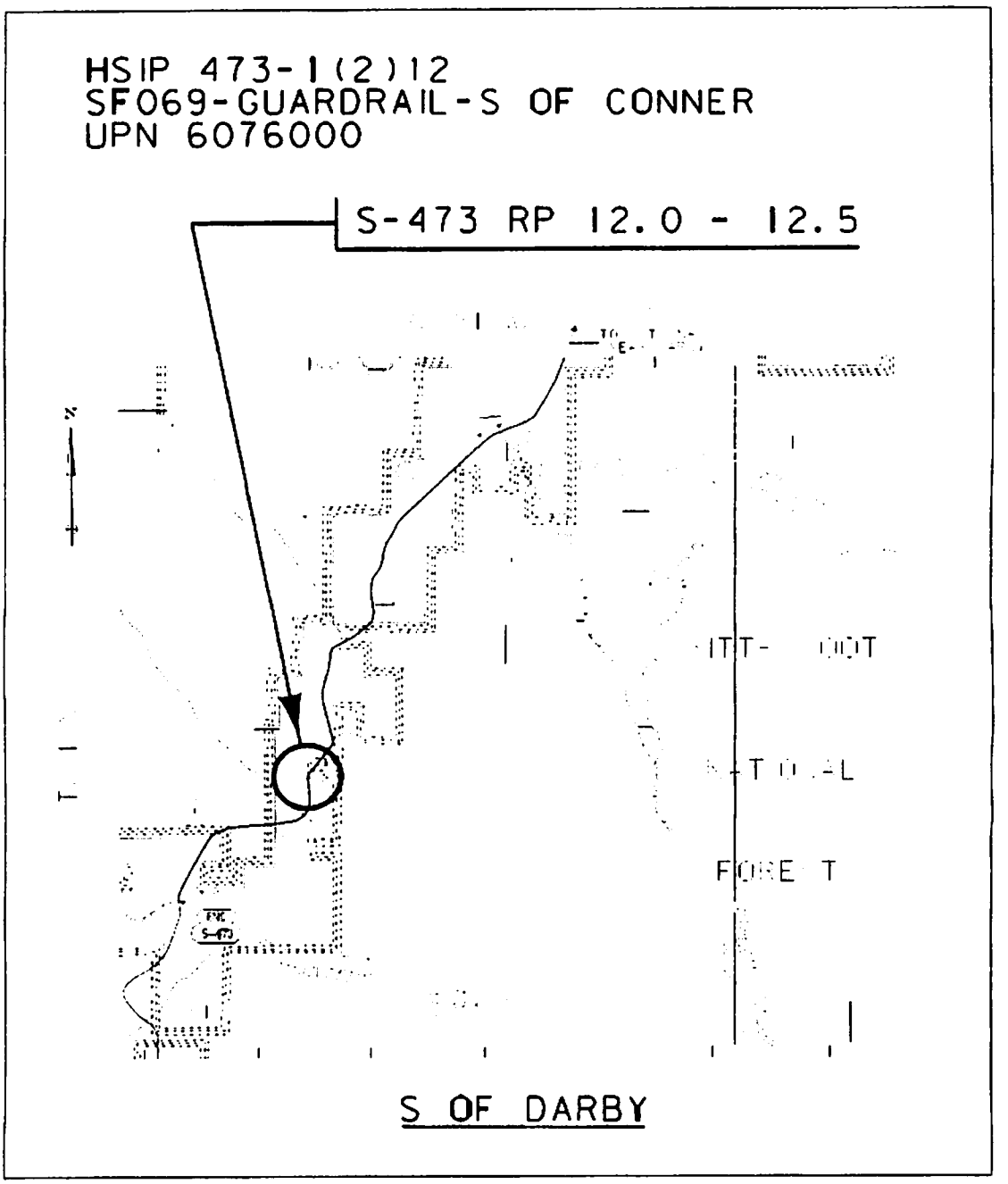
18. **Project Management** - Bill Squires will be the project manager, and the Missoula crew of the Road Design section will develop the plans.

19. **Ready Date**: The ready date will be established through the OPX2 override process. Similar projects in the recent past have had development times of about 18 months.

20. **Preliminary Cost Estimate** – The preliminary construction cost estimate was developed using Estimator and preliminary quantities based on project limits of RP 12.04± to RP 12.59±:

			w/ ICAP (10.91%)
Guardrail installation and related slope work -		$ 101,000	
	Traffic Control (Lump Sum)	$ 15,000	
Subtotal		$ 116,000	
	Mobilization (18%)	$ 21,000	
Subtotal		**$ 137,000**	
	Contingencies (5%)	$ 7,000	
Subtotal		**$ 144,000**	
	Inflation (3% per year for 2 years)	$ 9,000	
Total CN		**$ 153,000**	**$ 170,000**
CE (8%)		**$ 12,000**	**$ 13,000**

21. **Location Map**



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